

So you like Newport's magnificent beeches . . . Then please help take good care of them.

By David W. Brown, Commission member, and Scott Wheeler, Newport Tree and Parks Supervisor



Elegant trees and foliated groves of contrasting colors and textures are a big part of why people visit us here in Newport, Rhode Island. They are greeted by the “Liberty Tree” beech when they arrive on Farewell Street. Visitors see other notable trees as they drive past the Redwood Library and the Art Museum down Bellevue Avenue. And still

more when they stop at estates like Kingscote, The Elms, and Chateau-sur-Mer along the way.

Many of what visitors enjoy most are the European Beech trees (*Fagus sylvatica*), with their low-spread branches ... distinctive smooth elephant-skin-like bark ... nice dense shade ... long-lasting golden Fall leaf displays ... interesting copper, purple and fern-leaf variations ... spooky understories of weeping beeches that kids love to explore ... intricate bare limbs and twigs that highlight our winter scenes.

We Newporters love beeches too as we walk, run, bicycle and drive past them. Besides Bellevue Avenue there's hardly a side street or park where we can't see one in the background. Real estate people emphasize how beeches and other quality trees add much to property values. Not to mention our squirrels and the delight they take in finding and stowing away tasty beechnuts.

But we also tend to take beeches for granted. We assume that the wonderful specimens which have been there for decades will always be there. No matter how old they get, what pests and storms they encounter, or how badly we treat them.

Newport trees can have a tough life

It's not always easy for a tree in Newport to grow up and be in good health for a long time. Our climate is moderate but there can be long drought periods. Many of our trees are rooted in soil that is shallow, infertile and poorly drained. Branches are often exposed to Nor'easter windstorms, and even hurricanes every few years. Trees near the ocean can be covered with salt spray. Disease and insect pests have devastated some traditional tree species like elms and chestnuts, and new kinds of pests are coming here to southern New England.

Besides natural problems, a Newport tree has to try to survive what *people* can do to it: Being planted too deep in a hole that's too small. Bad pruning practices. Fumes from vehicle traffic. Road salt when there's snow and ice. People and cars tromping on and compacting the soil on its roots. Lawn mowers and weed eaters scarring its trunk. Excavations through its root area to make way for a building foundation, street curb

or underground utility line. Streetside trees are likely to find themselves being severely “topped” (major limbs cut off mid-way) to make space for tall trucks and overhead utilities. No wonder the average urban tree lives fewer years than its cousins in more natural wooded settings.

Newport’s beeches have their own special challenges

The European beeches that we have in Newport are better adapted to urban life than are their woodland cousins (the American beech, *Fagus grandifolia*). But they still crave care that tries to recreate the natural conditions of their heritage.

For one thing, **beech roots are fibrous and shallow**. This is good for absorbing moisture, but makes the roots easily damaged. Just a few people trampling on them regularly can do harm. Not to mention the frequent practice of parking cars and pickups under beeches for their cooling shade.

Beeches need a lot of water. They are one of the tree species that do need watering when there is a long drought. Beeches suck up a lot of moisture to sustain their dense foilage.

This along with their dense shade makes it almost impossible to sustain grass turf or other cover plants underneath beech canopies. The best groundskeepers in Newport are emulating natural duff by spreading two or three inches of **organic mulch** (such as partly decayed leaves) under their large beeches and other specimen shade trees. They make sure not to heap up mulch against the trunk base. That could lead to rotting, rodent damage, and impaired trunk ability to bring water and nutrients up to the leaves.

As other specimen tree species, beeches **should be pruned only as need be**, by experienced persons. There are valid reasons to do some trimming—e.g., removing a limb that is rubbing against another, hanging too low over a street, growing too near a building, or damaged from a storm. But tree experts are now less inclined than earlier to thin out branches heavily.

Over-pruning can be especially bad news for a beech tree. This is because its trunk and branches have such a thin, sensitive “skin”. When beech bark lacks shade from leaves and is exposed directly to the sun, harmful scald and burning can take place. Mature beeches suffer especially.

The broader picture is that the roots, trunk and branches, and leaves of a tree—along with their soil, water, and air environment—form a **delicately balanced system**. Imbalance can lead to a spiral of decline. Human stewardship can help sustain good balance in Newport’s urbanizing setting. But it may not take much by way of ill advised branch removal, soil compaction, root cutting or other intrusions for a beech’s health to be seriously jeopardized.

Be alert for fungus

Besides people, there may be some natural pests for a tree to cope with. While less susceptible than some species, European beeches can be seriously damaged by several insects and diseases. Tree experts urge Newport beech tree owners and caretakers to take special precautions against a group of fungus-like organisms called ***Phytophthora***. These take advantage of weaknesses in tree health—insect infestations, drought, damage to limbs or roots, old age decline, or other causes. Arborists believe that at least two or three *P.* species that hurt beeches are in our soils and plant material.

Phytophthora destroy the tissues beneath the bark. The outward sign—reddish or dark brown oozing—is bad enough. But inside, they cause very serious damage to the beech’s circulatory system. Moisture and nutrients from the roots can no longer make their way up to the leaves in the canopy. This leads to less photosynthesis, leaf and bud dieback, sensitive beech limbs exposed to the sun, and a generally weakened system. Then, any other insects and pathogens that come along can more readily finish off the stricken beech.



Fungus infection often shows up as seepage like this.

How do the *Phytophthora* reach the tree? Some of these fungi enter through the root system and move up into the trunk. Others splash up from puddles when it's raining, or the tree is being irrigated, and enter the lower trunk through insect wounds and damaged bark areas. The spores may land on the beech's own trunk and limbs, or on nearby plants. Some of those plants may themselves be prone to infection (English oaks, tulip trees and rhododendrons, among others). Wind and rain may carry those spores onto beeches.

People may unintentionally spread *Phytophthora* also through purchase of infected plants from unreliable sources, use of infected tools, or transport of soil and landscape debris.

What to do if it appears that *Phytophthora* have infected your valued beech? First, with help from a certified arborist and perhaps laboratory analysis, *find out for sure what pathogen it really is*. For some types, a phosphorus-based solution applied to infected areas *may* reduce further spread. Even then, a good arborist will probably tell you that it's experimental and not a sure thing. She or he will tell you also that, just as with a person who's ill with a disease, it's *important to see that the beech has good nutrition and other natural conditions conducive to better health*. Don't be misled by ads that chemical treatments or other heroic measures are sure cures for all such infestations.

Woolly aphids are a second pest that may infect our European beeches. These are a cottony-covered insect that emerge in late spring. They suck nutrients from young twigs and the undersides of leaves. They often cause some leaves to curl up and dry out, but this usually does not damage beeches seriously. (In contrast, the aphids and adelgids that attack hemlocks and some other trees can be serious.)

The woolly aphids do excrete a lot of unpleasant, sticky honeydew. In turn, sooty mold that feeds on the honeydew may appear on the leaves. Beech owners who find this too objectionable can ask certified arborists to try to reduce aphid infestations with insecticidal soaps or other non-hazardous treatments.

Winter moths are a third pest to be on the alert for, even though they seem to like fruit trees, maples and some other species more than beeches. These moths haven't been seen in Newport yet, but they may be headed this way via eastern Massachusetts.

Winter moths emerge from the soil in late fall, and lay eggs in tree bark and other crevices. In early spring, the eggs hatch into larvae that turn into small caterpillars that devour new buds.

Researchers are working on biological means to control winter moths and some other insects. Nothing is very sure yet. The main way that Newporters can create defenses against these and other new pests is to provide our trees with good natural growing conditions that lead to vigorous health!

Beeches, especially our older ones, need helpful natural surroundings

Many of Newport's beeches were planted during Newport's "gilded age" of large estates and legions of gardeners who could give careful care to flowers, lawns, shrubs and trees. Now many of these specimens are more than a century old; they are into old-age decline. Estate grounds aren't so spacious as before. Buildings, walkways and driveways are squeezing into the canopy and root spaces of these large trees.

Amid pressures for land redevelopment and intensification, people are cutting down some of these grand old beeches sooner than they have to be. Other beeches have become so neglected, damaged or hemmed in that they might best be removed and replaced with young plantings.

Happily, we have quite a few mature beeches that—with careful guidance from certified arborists—can be rescued and nurtured into years and even decades of extended life. But this has to be matched with two other ingredients:

1. **Owners' and developers' appreciation** of the value of sustaining these beeches (both aesthetic and economic), and readiness to provide the needed investments and protections.
2. **Community policies** that encourage this—for example, planning/zoning that reduces construction intrusions, and fosters flexible layouts to enable specimen trees, natural drainage patterns and other natural features to stay.



Please don't tromp on beeches' toes!

If a valued tree of yours is having health problems, Scott Wheeler, Newport's Tree Warden, urges you to remember this above all:

1. Do no harm! Within the root zone, don't excavate, compress soil, or change water flows, unless you really know what you're doing.
2. Assess the cultural setting of your tree. Are you trying to force it to live in tough surroundings? Try to replicate natural conditions.
3. Intervene with caution and only if you really know what you're doing, preferably with guidance from a certified, licensed arborist.
4. Do the math. Is it wiser to spend more on this ailing tree, or to replace it with a young tree better suited to the surroundings?

Replace declining beeches with more beeches?

When an older beech finally has to be removed, should another European beech be planted on that site? Maybe yes, maybe no. Several factors enter in:

- Will there be enough permeable space and a compatible natural setting in future decades?
- Will another beech fit into the projected landscape scheme so well as one of the new tree varieties that are becoming available?
- Might not it be beneficial to diversify tree species in the neighborhood, as a hedge against your "urban forest" being wiped out by some unexpected pest?

If an old beech has been near a street, its replacement might well be set back in a nearby yard. That way, less damage from traffic, trench digging, road salts, etc. is likely. In fact, the Newport Tree and Parks Division has a ***Street Tree Planting Program*** that encourages this. A property owner who cooperates can choose one or more young trees from a list of improved varieties that fit Newport. Most of these fit smaller spaces, and are more pest-resistant, than our traditional trees. City tree staff plant and help them get started. In return, the owner provides space back from the street, pays a modest price for the tree, and agrees to take good care of it as a Tree Steward.



Improved, compact beech cultivars are becoming available.

If you don't own a beech tree, or have space for one

Most of us in Newport don't have a traditional beech tree in our own yard, or large enough space to plant one. Still, we can encourage good care of beeches in our vicinity. When we see a neglected beech, we can tell the owner how much we enjoy beeches, and help him or her in a friendly way to get in touch with arborists who can give it good care. We can exert positive influence toward timely attention to beeches and other valuable trees via our neighborhood and condo associations, preservation societies, and other groups. At the city level we can reinforce efforts to guard our existing beeches, to encourage replacement where there is space, and to ensure that good care of the elegant beeches in our parks continues.

If your own yard is not huge, you might consider planting one of the more ***compact beeches*** that good nurseries in our vicinity have begun to sell. The Newport Tree Society in specimen tree sales has recently featured two—the Rivers Purple Beech (grows to 50 feet tall) and the smaller, narrower Purple Fountain Beech (grows to 20 feet).

Beech hedges are another way to add some attractive beech “flavor” to your summer and fall foliage. They endure regular trimming better than many woody species.

Even if you have just a tiny space, a beech of your very own can become a great part of your life. **Bonsai** lovers find that beech stock can make a wonderful outdoor specimen. It can last a long time. One can consider many interesting species and subspecies, including Oriental beeches as well as European and American.



A beech hedge can add nice color and texture even in the winter.

All beech wood needn't go to waste

Most of us feel sad when an elegant old beech tree finally has to be cut down, and its huge limbs and trunk are being trucked off across one of our bridges to “someplace.” Does that have to be the end for the career of that beech?

Not necessarily. With its low branches and lack of a tall main trunk, a beech is not in much demand for lumber. But it has some great qualities for wood crafts and manufacturing—hard, fine grain, very white. It's used for making furniture, parquet flooring, veneer plywood, work benches and mallets, wooden toys. One “lower” use is railroad ties. Cured for a year or so, it makes good firewood.

So if you have uses like that, or know people who might, try to work out something with the tree service so that your old beech isn't just tossed away.

For more information see such internet sites as:

www.newporttreesociety.org Has a wonderful photo collection of Newport beeches. Also details about the Newport Tree Society's latest tree sale, and links to other sites on selection and care of community trees.

www.urbanext.uiuc.edu/treeselector/detail_plant.cfm Briefs on beeches and other species to help select trees for your home, from the University of Illinois. (Most of Rhode Island is in USDA plant hardiness zone 6. Newport's more moderate climate puts us just barely into zone 7.)

www.uri.edu/ce/factsheets Not too much on beeches specifically, but provides access to excellent information about tree selection and care from the University of Rhode Island.

www.umassgreeninfo.org/fact_sheets/diseases/phytophthora_bleeding_canker.pdf A helpful brief on this fungus, which is attacking some beeches and other tree species here in the Northeast, from the University of Massachusetts. This UMass site has a fact sheet also on the winter moth.

www.plantpath.cornell.edu/Labs/Hudler/Research.html Professor George Hudler has been studying beech cankers from *Phytophthora* in southeastern New York State. For more, see online his latest report, “European beech decline”.

www.defra.gov.uk/planth/pestnote/kern.pdf Description and photos of *Phytophthora kernoviae*, as observed in English woodland settings.

www.na.fs.fed.us/urban/inforesources/index.shtml From the U.S. Forest Service, links to reliable information about selection, care and protection of urban trees in the Northeast. Helps to tree commissions and policymakers too.

www.forestryimages.org From USDA with the U of Georgia, detailed photos and drawings of beeches and other trees, cultural care, causes of damage, etc.

www.angliangardener.co.uk/Plants%20pop%20ups/beechn_fagus_sylvatica.html An English slant on European beeches as possible hedges.

The Newport Tree and Parks Supervisor, Scott Warden, can be reached by voice mail at 401-845-5802 and by email at swheeler@cityofnewport.com. The Tree and Open Space Commission chairperson, Susan Ruf, can be reached at 401-849-0296 and ruf@cox.net. On the internet, typing in “Newport trees and parks” will lead directly to the City web page that has the Commission's meeting agendas and minutes, other bulletins in its information series, and details of Newport's spring and fall street tree planting programs that enable cooperating property owners to fill in gaps at low cost, with carefully chosen trees and technical help.